

REMARKS

Claims 1-25 are pending in the application. claims 9 and 19-25 have been withdrawn from consideration.

Specification

(a) The abstract of the disclosure has been objected to because it contains structure from claim 1. Applicants do not clearly understand why an abstract of the disclosure containing a structure from a claim is improper.

The MPEP 608.01(b) A. provides:

The content of a patent abstract should be such as to enable the reader thereof, regardless of his or her degree of familiarity with patent documents, to determine quickly from a cursory inspection of the nature and gist of the technical disclosure and should include that which is new in the art to which the invention pertains.

Further, The MPEP 608.01(b) B. provides:

If the patent is in the nature of an improvement in old apparatuses, product, or composition, the abstract should include the technical disclosure of the improvement.

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Where applicable, the abstract should include the following (1) if a machine or apparatus, its organization and operation

Applicants believe that the Abstract of the Disclosure in the present application meets all of the foregoing requirements because, although the statements therein may be similar to claim 1, as filed, claims in general include technical disclosure and novel feature of the claimed invention, as well as a technical disclosure of improvements and its organization and operation.

To provide brief summary of the invention, as required by the Examiner, minor changes have been made to the Abstract of the Disclosure to overcome this objection.

The Examiner is respectfully requested to reconsider and withdraw this objection.

(b) The disclosure has been objected to because there is not description for reference character “40b” shown in Fig. 9A.

In view of this, page 46 of the specification has been amended to provide description of the reference character.

The Examiner is respectfully requested to reconsider and withdraw this objection.

(c) Minor changes have been made to the specification to place it in better form for U.S. practice.

Embodiment of the Present Invention

An embodiment of the present invention is directed to a substrate accommodating tray (10) for accommodating a substrate. The tray (10) includes,

a frame (12) including a pair of first frame portions (12a) facing each other and a pair of second frame portions (12b) facing each other;

a plate-like support element (11), on which the substrate is placed, provided in an area surrounded by the frame (12) for supporting the substrate, the support element (11) having a first opening (10a) provided between the pair of first frame portions (12a); and

at least one support member (13) provided along the first opening (11a) between the pair of first frame portions (12a) for supporting the support element (11).

Claim Rejections - 35 U.S.C. § 102

Claims 1, 3, 6, and 18 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Murphy (U.S. Patent No. 5,103,976). This rejection is respectfully traversed.

In the Office Action, the Examiner alleges that the intermediate beam 32 disclosed in Murphy corresponds to the “plate-like support element” of the present invention. Applicants submit, however, that

the intermediate beam 32 does not correspond to the “support element,” as recited in claim 1 at least for the following reasons.

First, the intermediate beam 32 of Murphy is a beam that defines a lattice with storage pocket areas for stoning PGA components (see col. 5, line 67 - col. 6, line 6 of Murphy). In the present invention, the support element 11 supports the substrate, while in Murphy, the substrate is supported by a plurality of ribs in the storage pocket area (see col. 6, lines 42-54, Fig. 1), and not supported by the intermediate beam 32.

Second, as can be clearly seen in Figs. 1 and 2, the intermediate beam has a height that is substantially the same as the framework 24 and the cross beams 32 through 35, which is substantially greater than its width and substantially shorter than its length. As Applicants understand, a plate-like structure refers to a structure resembling a thin sheet of uniform thickness, i.e., having a small value in height but a large value for width and length.

Therefore, the intermediate beam 32 of Murphy is not “a plate-like support element . . . for supporting the substrate,” as recited in claim 1.

Murphy states “[t]he tops of the upstanding ribs 55, 56, 60, and 61 engage the bottom of the PGA component housing along orthogonal lines and space the ends of the terminal pins from the base plate portion 50” (see col. 6, lines 43-47). Hence, the substrate (PGA components) is supported by the ribs in Murphy. However, the ribs in Murphy do not take a plate-like shape (see for example, Fig. 1 and col. 6, lines 19-22 of Murphy). Therefore, the ribs in Murphy do not correspond to the support element of claim 1.

On the other hand, the template 80 or 81 in Murphy can be said to be plate-like as Murphy discloses “the template 80 has a planar frame 82” (see col. 7, line 68 - col. 8, line 1). However, the templates do not support the substrate, but rather function as guides with the square apertures for

facilitating the manual placement of PGA component (see for example, Fig. 1 and col. 8, lines 24-31 of Murphy).

Therefore, none of the above-mentioned components in Murphy teaches or suggests “a plate-like support element . . . for supporting the substrate.”

The Examiner also alleges that the template 80 in Murphy corresponds to the support member of the claimed invention of the present application. Applicants respectfully disagree.

Claim 1 recites “. . . one support member provided . . . for supporting the support element.” The support member in the present invention is provided along the opening of the support element, having a suitable structure for supporting the support element, so that the support element are prevented from warping and can stably support a thin and large glass substrate.

As mentioned above, the template 80 or 81 in Murphy functions as a guide for facilitating the manual placement of PGA components through the square apertures (see for example, Fig. 1 and col. 8, lines 24-31 of Murphy). The template 80 or 81 is structurally separate from the structure of the tray 10 in Murphy. When the template 81 is positioned in a position for facilitating manual placement of PGA components, the template 81 overlays the pocket storage areas as shown in Fig. 1 (see col. 8, lines 21-22 of Murphy).

The template does not support any components in Murphy, including the intermediate beam 32, which corresponds to the support element of claim 1 according to the Examiner.

With regard to the engagement of the template 81 with the tray 10, Murphy states:

An upstanding handle 90 traverses the center of the panel 82 for facilitating the template by aligning the template with the center beam 31. The template 80 engages the beam 31 at a slot 91 through the opposite surface of the template 80 in the plane of the handle 90. As an operator moves the template 80 toward the tray 10, the keyway 83 engages a key 92. The key 92 has a semi-cylindrical shape and is centered in the pocket storage area 42. The storage pocket areas 43, 44, 45 and 46 have storage keys. When the slot 91 engages the central beam 31, the fingers 84 and 85 engage the front beam 25 and the back beam 26 respectively to align the template 80

above the pocket storage areas 36 and 42. This places the template in the position shown in FIG. 2 with the template 81 overlying the pocket storage areas 37 and 43. (see col. 8, lines 8-23)

From this statement, it is clear that even when the template 80 or 81 is placed in a position overlaying the pocket storage areas of tray 10, the template does not engage the intermediate beam 32. Therefore, considering all of the above, the template 80 does not possibly support the intermediate beam 32.

Further, neither the intermediate beam 32 nor any of the other components of the tray in Murphy corresponds to “a plate-like support element . . . for supporting the substrate,” as recited in claim 1, as previously discussed. Hence, neither the template 80 nor any of the other components of the tray in Murphy corresponds to the “support member” that supports the support element. Therefore, Murphy also does not disclose or suggest “one support member provided . . . for supporting the support element.”

The use of the tray of Murphy is totally different from the present invention, considering the difference in the size of the substrates being transported. Murphy is directed to trays for storing and transporting multiple PHA integrated circuits. As mentioned above, the present invention is directed to storing and transporting glass displays. While glass displays can have a side length of 1.3m or greater and a thickness of 0.7mm or less (see for example, page 2, lines 9-15 of the specification), the PGA integrated circuits vary from 1 to 2.5 inch squares (see for example, col. 3, lines 26-31 of Murphy). Unlike PGA integrated circuits, a large and thin glass substrate easily warps (see page 2, line 17 of the specification). Additionally, a glass substrate is usually removed using a glass substrate adsorption hand (see page 3, lines 10-12 of the specification).

As discussed in pages 11-13 of the specification, the claimed invention provides a substrate accommodating tray for glass displays of an increased space efficiency in comparison to the prior art (see page 5, lines 3-13 of the specification).

Conventionally, it is necessary to keep a distance, in a glass substrate accommodating box, sufficient to allow for warping of the glass substrate and insertion of the adsorption pads during removal of the substrate (see page 3, lines 17-21 of the specification).

The feature of a plate-like support element which supports the substrate reduces warping of the glass substrate. Support members, which support the support element at the opening of the support element, also ensure the rigidity of each part of the support element, and prevent warping of each part of the support element. Warping of the glass substrate is further prevented in this structural configuration.

The glass substrate accommodating tray of prior art leaves a space on side surfaces for inserting the adsorption pads used for the removal of the glass substrate from the tray. Since the support element of the claimed invention has opening where removing pins can be inserted for removing the glass substrate from the tray, no spaces are required to be left on the side surface for adsorption pads. This reduces the thickness of the tray and increases the space efficiency for transportation and storage.

Therefore, Murphy fails to disclose or suggest the foregoing features of the present invention.

Claims 3, 6, and 18, dependent on claim 1, are allowable at least for their dependency on claim 1.

The Examiner is respectfully requested to reconsider and withdraw this rejection.

Claim Rejections - 35 U.S.C. § 103

(a) Claim 2 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Murphy. This rejection is respectfully traversed.

Claim 2, dependent on claim 1, is allowable at least for its dependency on claim 1.

This rejection is respectfully traversed.

(b) Claim 4 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Murphy in view of Ikeguchi (JP 410,007,171). This rejection is respectfully traversed.

Applicants assume that the Examiner has intended to cite JP 10-007171 to Ikeguchi rather than JP 410,007,171 as indicated by the Examiner in the Office Action.

Claim 4, dependent on claim 1, is allowable at least for its dependency on claim 1.

Further, Ikeguchi discloses “each of the article holding portions 20 is formed into a semi-spherical shape” (see abstract of Ikeguchi). Hence, the article holding portions 20 may be considered to be a support element for supporting the substrate, the semi-spherical shape does not resemble “a plate-like” shape as required in the present invention. Therefore, Ikeguchi does not disclose or suggest “a plate-like support element . . . for supporting the substrate.”

The Examiner is respectfully requested to reconsider and withdraw this rejection.

(c) Claim 5 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Murphy in view of Thomas et al. (U.S. Patent No. 6,227,372). This rejection is respectfully traversed.

Claim 5, dependent on claim 1, is allowable at least for its dependency on claim 1.

Further, Thomas discloses that “[e]ach insert 30 contains a pocket 31 in which the component C is held” (see col. 5, lines 20-30), from which it appears that the insert 30 could be the support element, which supports the substrate. Specifically, the component C is placed in the pocket 31 formed by the insert 30. The pocket, however, does not resemble a “plate-like” structure. Therefore, Thomas also does not disclose or suggest “a plate-like support element . . . for supporting the substrate.”

The Examiner is respectfully requested to reconsider and withdraw this rejection.

Allowable Subject Matter

Applicants appreciate the Examiner’s indication that claims 7-8 and 10-17 would be allowable if rewritten in independent claim form including all of the limitations of the base claim and any intervening claims.

Applicants believe, however, that claims 7-8 and 10-17, variously dependent on claim 1, are allowable at least for their dependency on claim 1.

A favorable determination by the Examiner and allowance of these claims is earnestly solicited.

Conclusion

Accordingly, in view of the above amendments and remarks, reconsideration of the rejections and objections, and allowance of the pending claims are earnestly solicited.

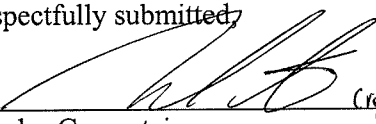
In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Maki Hatsumi Reg. No. 40,417 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By  (reg. # 40,417)
for Charles Gorenstein
Registration No.: 29,271
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road, Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant